

**Amendments to the Specification:**

Please replace paragraph [0016] with the following amended paragraph:

[0016] Figure 1 illustrates a generalized apparatus [[20]] that is in accord with the principles of the present invention. That apparatus includes a light source for producing an optical signal, such as a scanning optical source 24 that produces a narrow bandwidth beam that sweeps across an optical spectrum. An optical signal produced by the optical source 24 is applied to a coupler 28 that couples the sweeping narrow bandwidth beam to an optical fiber network 32, e.g. an optical sensor array. The optical fiber network 32 includes multiple optical fiber sections, 36A-36D, which are coupled together by splices 38A and 38B and a connector 40. The splices 38A and 38B and the connector 40 represent discontinuities in the optical fiber network 32. The optical fiber network 32 also includes an FBG element 42. For simplicity, only one FBG element 42 is shown. Generally, the network 32 will comprise a plurality of FBG elements.

Please replace paragraph [0019] with the following amended paragraph:

[0016] The noise reduction system 48 reduces, removes, or cancels noise from the output of the receiver 44. There are two general classes of noise: broadband background noise and periodic noise. Background noise manifests itself as noise that exists over all or most of the optical spectrum of interest. For example, incoherent light that leaks into the apparatus [[20]] would produce broadband background noise. Such noise, if it exists, can be removed by averaging the noise over a wide bandwidth and then subtracting that noise from the receiver output. Period noise manifests itself as noise impulses in the received spectrum. Such periodic noise is removed by first identifying the noise impulses as periodic noise and then gating the periodic noise out of the received spectrum.